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(56) Documents Cited

GB 2264628 A

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EP 0133068 A

WO 94/14105 A

WPI Acc No: 88105867/16 & CH 664663 A (Malvine UK

Ltd.) WPI Acc No: 87291814/42 & CH 662028 A

(Solonor AG)

(58) Field of Search

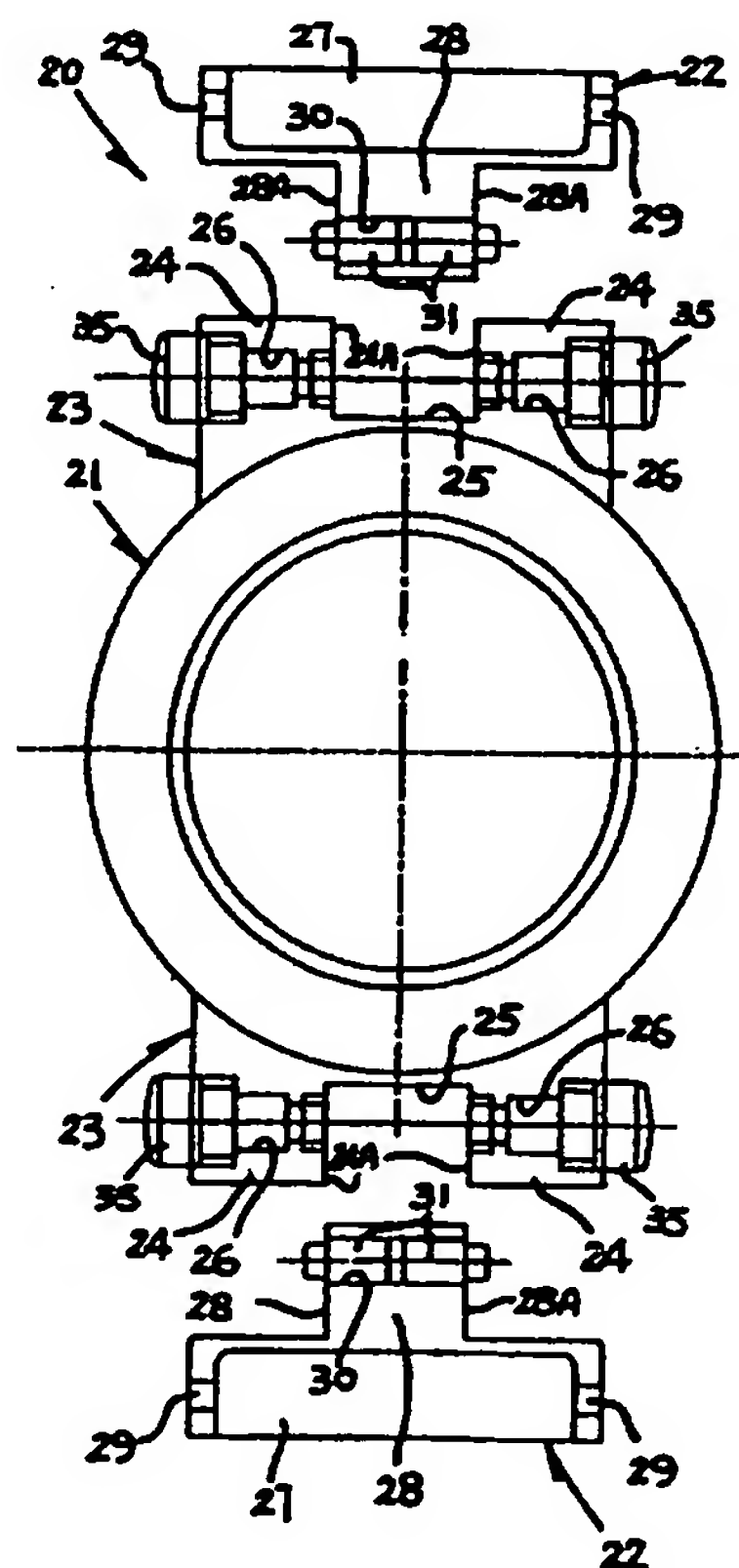
INT CL<sup>6</sup> A44C 5/14 5/20

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(54) Releasable connector for a wrist-watch or bracelet

(57) A connection for an item of wrist wear such as a strap or bracelet has an elongate body including first and second ends (20, 23) releasably connected together. The first end has a recess part (25), and the second end has a protruding part entered into the recess part. The parts comprise mutually aligned holes extending transversely to the body. The parts include at least one connector (31) which is movable between a first position in which it connects the two ends together against separation longitudinally of the body and a second position in which it is located substantially wholly inside said one hole so as to permit disconnection of the two ends. A spring is provided to urge the connector (31) towards the first position. The item further includes a manual operator (35) to disengage the connector.

FIG.3



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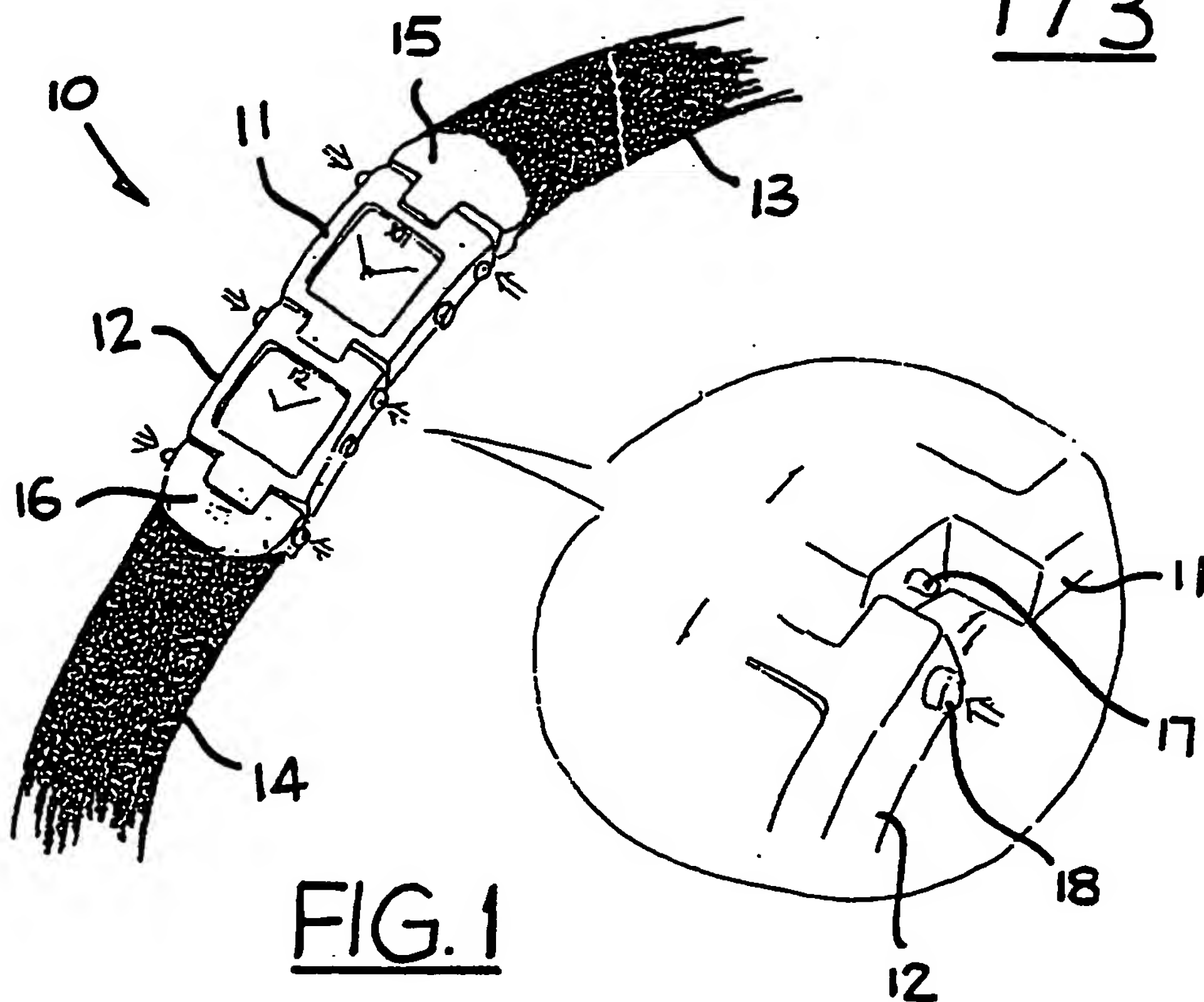


FIG. 1

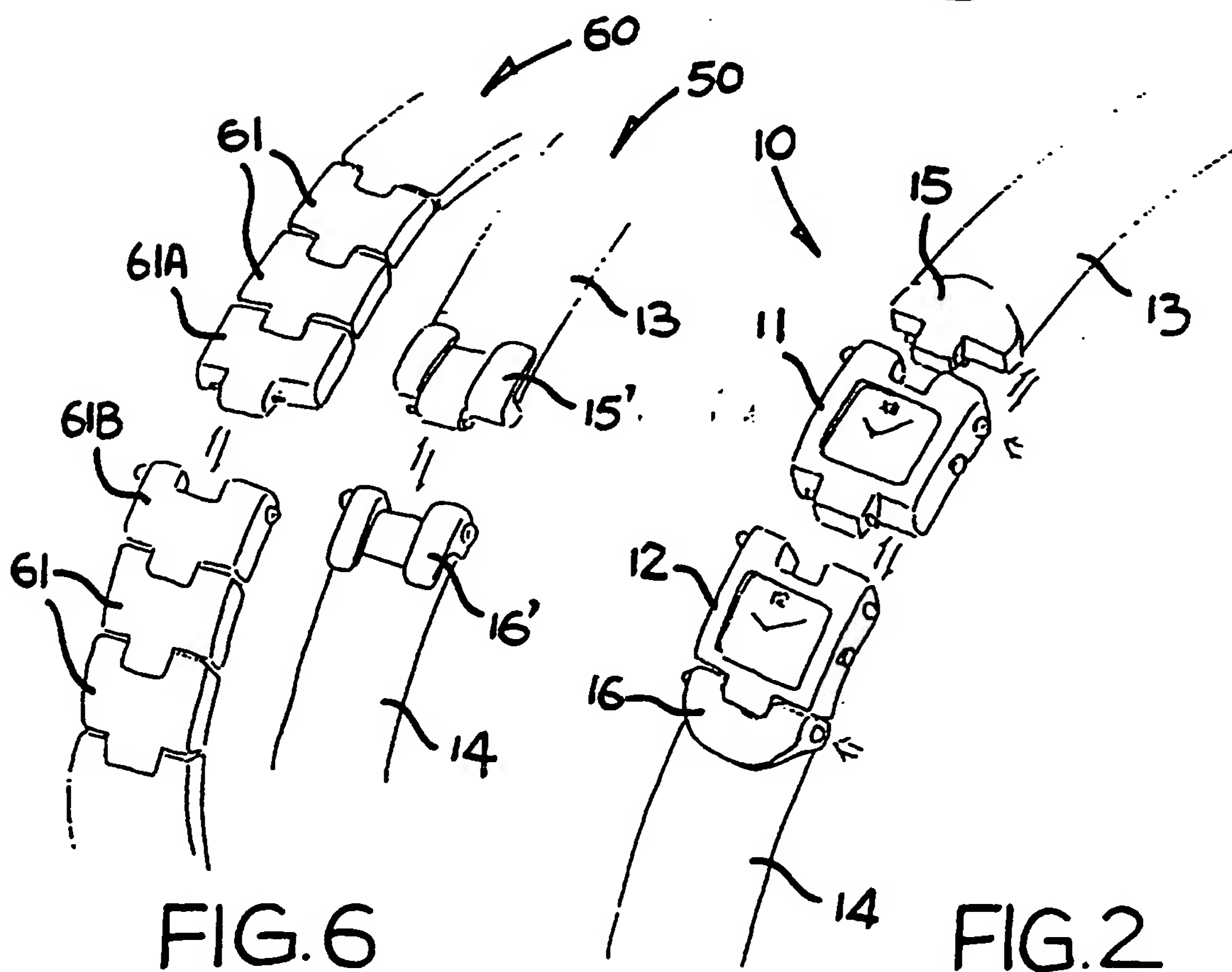


FIG. 6

FIG. 2

2/3

FIG.3

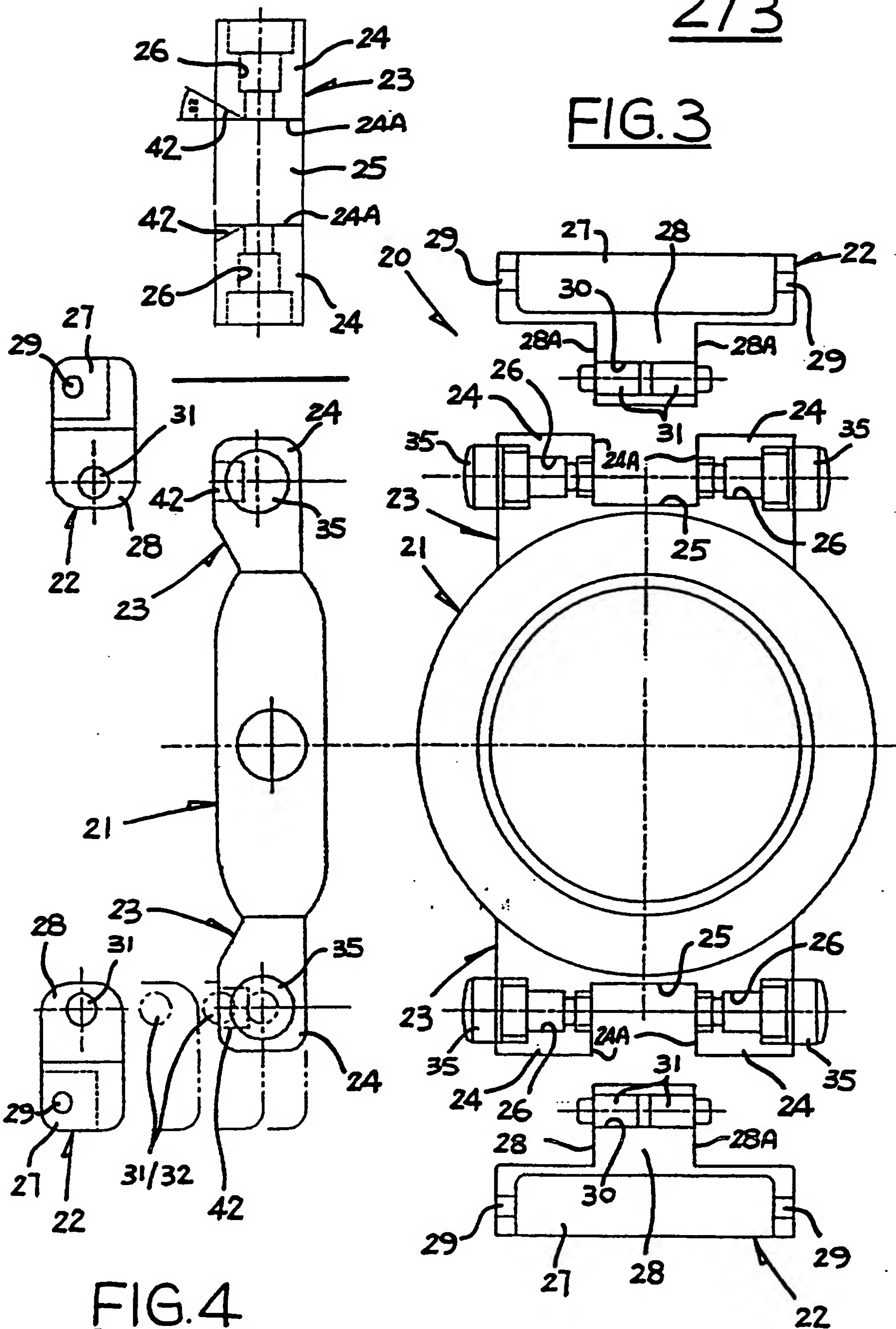


FIG.4

3/3

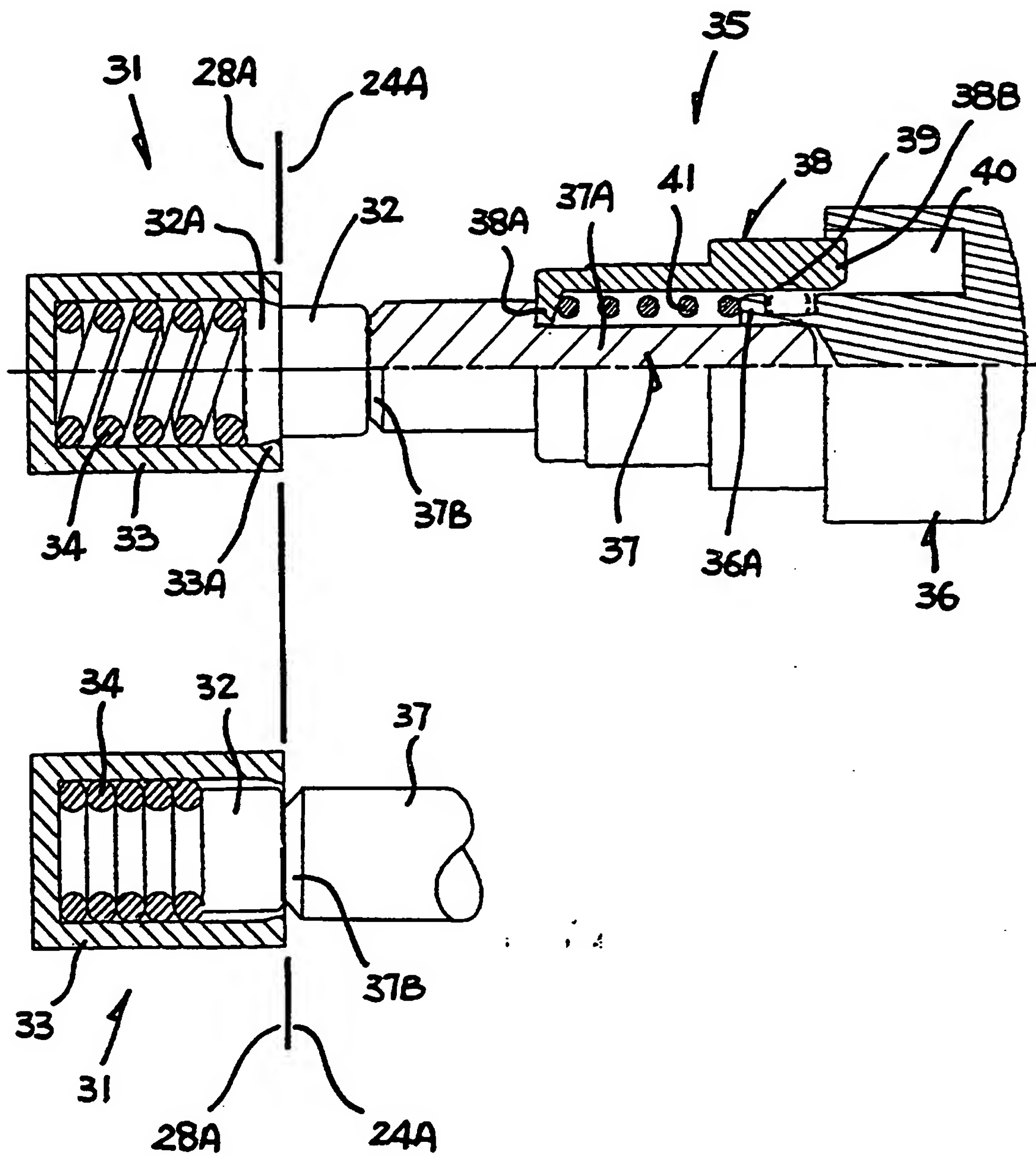


FIG. 5

Title: CONNECTION FOR A WRIST STRAP OR BRACELET

The present invention relates to an item of wrist wear in the form of a wrist watch, bracelet, band or the like.

SUMMARY OF THE INVENTION

5 According to the invention, there is provided an item of wrist wear which has a elongate body which includes first and second ends releasably connected together, said first end having a recess part and said second end having a protruding part entered into the recess part, which parts  
10 comprise mutually aligned holes extending in a direction transverse to the longitudinal extent of the body, a connector movable in the holes between a first position extending from one said hole to the other hole so as to connect the two ends together against separation in the  
15 longitudinal extent of the body and a second position inside said one hole but absent from the other hole so as to permit disconnection of the two ends, a spring urging the connector towards the first position, and a manual operator provided in said other hole for moving the  
20 connector from the first to the second position against the action of the spring.

It is preferred that said one hole is provided in the protruding part and the other hole is provided in the recess part.

Preferably, the connector is elongate and extends in a direction transverse to the longitudinal extent of the body.

5 More preferably, the connector is formed by a stationary substantially cylindrical body having an open end and a co-axial substantially cylindrical connecting stud slidably held by the body at the open end, and the spring is provided inside the body to urge the connecting stud axially outwards.

10 Preferably, the manual operator comprises a elongate member which is slidable in said other hole in a direction transverse to the longitudinal extent of the body.

More preferably, the manual operator incorporates a spring resiliently urging the elongate member co-axially against  
15 the connector.

In a specific construction, the manual operator includes a stationary sleeve holding co-axially therein the elongate member and the spring.

20 In a preferred embodiment, the recess part is substantially U-shaped and has opposite sides between which the protruding part is located when connected to the recess part.

More preferably, the protruding part has opposite sides, at each of which sides a respective connector is provided, and a respective manual operator is provided at each side of the recess part for co-operation with the corresponding  
5 connector.

The item of wrist wear may be in the form of a wrist watch, a wrist bracelet or a wrist band.

#### BRIEF DESCRIPTION OF DRAWINGS

The invention will now be more particularly described, by way of example only, with reference to the accompanying  
10 drawings, in which:

Figure 1 is a front perspective view of a first embodiment of an item of wrist wear, in the form of a wrist watch, in accordance with the invention;

15 Figure 2 is a front perspective view similar to Figure 1, showing parts of the wrist watch disconnected apart;

Figure 3 is a front view of a second embodiment of an item of wrist wear, in the form of another wrist watch, in accordance with the invention, showing a watch case and two  
20 strap end pieces separated;

Figure 4 is a side view of the wrist watch of Figure 3,

showing how one strap end piece is connected to the watch case;

Figure 5 is an enlarged side view of a connector, for connecting each strap end piece to the watch case of Figure 4, alongside with a press-knob for releasing the connector; and

Figure 6 is a front perspective view of two further embodiments of an item of wrist wear, in the form of a wrist bracelet and a wrist band, in accordance with the invention.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring firstly to Figures 1 and 2 of the drawings, there is shown a first wrist watch 10 embodying the invention, which wrist watch 10 is formed by two articulated watch bodies 11 and 12 and a pair of watch straps 13 and 14. Each watch strap 13/14 is connected to the top/bottom end of the combined watch bodies 11 and 12 by a strap end piece 15/16. Inter-connection between each pair of adjacent watch bodies/straps is effected by means of a pair of spring-loaded stud connectors 17, each of which is releasable by means of a press-knob 18, as hereinafter described.

Reference is now made to Figures 3 to 5 of the drawings,



showing a second wrist watch 20 embodying the invention, which has a watch body or case 21 and a pair of watch straps (not shown) connected to opposite ends of the watch case 21 by respective strap end pieces 22. Connection  
5 between the watch case 21 and the strap end pieces 22 is effected in the same manner as in the case of the first wrist watch 10, as described below.

A pair of integral extensions 23 is formed on opposite ends of the watch case 21, both of which are generally U-shaped  
10 facing outwards. Each extension 23 has symmetrical left and right portions 24, forming therebetween a recess or gap 25 which has parallel sides 24A (opposed inner sides of the portions 24). The two portions 24 bear respective holes 26 which extend transversely to the longitudinal extent of the  
15 watch case 21 and are aligned with each other.

Each strap end piece 22 has a hollow elongate box-like body 27 and an integral central lug 28 which protrudes laterally from front side of the body 27. Opposite end sides of the body 27 bear a pair of mutually aligned holes 29. Rear and  
20 bottom sides of the body 27 are absent for receiving the end of a respective watch strap, which is then secured in place by means of a hinge pin (not shown) journaled between the two holes 29. The central lug 28 has a pair of parallel sides 28A and a shape which is complementary to  
25 that of the gap 25 of the associated watch case extension 23 for fitting therein. A transversely extending hole 30

is formed in the lug 28, which is aligned at opposite ends with the holes 29 of the left and right portions 24 of the associated watch case extension 23, when the lug 28 fits inside the associated gap 25.

5 Each strap end piece 22 is connected to the respective watch case extension 23 by means of a pair of stud connectors 31 (equivalent to the stud connectors 17 of the first wrist watch 10). As shown in Figure 5, each stud connector 31 is formed by a locking stud 32, a cylindrical  
10 can-like body 33 holding co-axially at its open end the locking stud 32, and a compression coil spring 34 provided inside the body 33 for urging the locking stud 32 outwards. Open end 33A of the body 33 is slightly restricted for engaging a slightly expanded rear end 32A of the locking  
15 stud 32, thereby retaining the stud 32 in place.

In relation to each strap end piece 22, the bodies 33 of the pair of stud connectors 21 are press-fit just completely into opposite ends of the hole 30 of the lug 28, leaving the corresponding locking studs 32 extending in  
20 opposite directions outwards off the respective lug sides 28A. Each locking stud 32 is slidable relative to the corresponding connector body 33 between a locking position extending outwards as aforesaid and an unlocking position hidden just behind the respective lug side 28A, both as  
25 shown in Figure 5. Each internal spring 34 resiliently biases the corresponding locking stud 32 towards the

locking position. The unlocking position is reached when the spring 34 is completely compressed. In the locking position, each locking stud 32 extends transversely across an interface between the corresponding lug side 28A of the strap end piece 22 and the corresponding extension side 24A of the watch case 21, thereby connecting the strap end piece 22 to the watch case 21 against separation (in the longitudinal direction of the watch case 21).

The stud connectors 31 are releasable by means of respective press-knobs 35 (equivalent to the press-knobs 18 of the first wrist watch 10). Each press-knob 35 is formed by an outer button 36, an inner shaft 37 joined co-axially with the inner side of the button 36, and an intermediate sleeve 38 disposed around and over the junction between the button 36 and the shaft 37. Outer end portion 37A of the shaft 37 has a reduced diameter, which is press-fit into a tubular inner end 36A of the button 36, said press-fit being strengthened by a split ring 39 disposed tightly around the inner end 36A. Innermost end of the sleeve 38 has an annular inward flange 38A which slidably engages the innermost end of the shaft portion 37A. A compression coil spring 41 is disposed around the shaft portion 37A, wholly covered by the sleeve 38, co-acting at opposite ends between the button inner end 36A and the sleeve flange 38A, thereby resiliently urging the button 36 and the sleeve 38 apart. The button 36 has an internal annular space 40 to accommodate an adjacent, outermost end 38B of the sleeve 38

when the button 36 and the sleeve 38 are pressed axially together against the action of the spring 41.

Each pair of press-knobs 35 are provided in the respective holes 26 of the associated watch case extension 23, with  
5 the two shafts 37 thereof pointing inwards and bearing co-axially against the locking studs 32 of the corresponding stud connectors 31 of the adjacent strap end piece 22, as shown in Figure 5. The sleeve 38 of each press-knob 35 and the associated hole 26 have complementary stepped axial  
10 cross-sections for the sleeve 38 to be press-fit inwards into the hole 26, as best shown in Figure 3, thereby locating the press-knob 35 in position, with the button 36 and shaft 37 thereof slidable through the hole 26. The button 36 and shaft 37 are resiliently biased by the  
15 spring 41 outwards into a normal position, in which innermost end 37B of the shaft 37 stays at a certain distance behind the side 24A of the associated extension portion 24. This normal position corresponds to the locking position of the adjacent locking stud 32, and is  
20 determined by the forces of the associated spring 41 and the spring 34 of the adjacent stud connector 31 acting in equilibrium.

In order to disconnect one strap end piece 22 from the watch case 21, the buttons 36 of the associated pair of  
25 press-knobs 35 are both pressed inwards until the respective locking studs 32 are pushed into their unlocking

position. At this moment, as each co-axial pair of locking stud 32 and shaft 37 is engaging right at the corresponding interface between the adjacent sides 28A and 24A, the strap end piece 22 may be disconnected from the watch case 21, in the longitudinal direction of the latter. The springs 41 of the press-knobs 35 serve to return the corresponding shafts 37 and buttons 36 back to the normal position.

Referring more specifically to Figure 4, the opposed inner sides 24A of each watch case extension 23 have respective inclined surfaces 42 (inclined at about  $28^{\circ}$ ). This pair of inclined surfaces 42 serve to bear against and thus to push back the respective locking studs 32 of the associated strap end piece 22 such that the strap end piece 22 may be snapped back into connection with the watch case 21 when it is engaged with the extension 23 in a direction from below the watch case 21.

The two strap end pieces 22 of the second wrist watch 20 have identical construction, both being of male-type. The strap end piece 15 of the first wrist watch 10 is also of male-type, but the other strap end piece 16 is of female-type, that being equivalent to the watch case extensions 23 of the second wrist watch 20. Accordingly, the top and bottom ends (extensions) of each watch body 11/12 of the first wrist watch 10 are of female-type and male-type respectively.

Referring now to the right hand side of Figure 6 of the drawings, the watch bodies 11 and 12 of the first wrist watch 10 may be removed, with the two strap end pieces 15' and 16' thereof connected together, in the manner as above  
5 described, to form a wrist band 50. The left hand side of Figure 6 shows a bracelet 60 for a wrist watch, which is equivalent to the combined straps 13 and 14 of the wrist watch 10. The bracelet 60 is formed by a series of articulated links 61, of which a pair of adjacent (end or  
10 terminal) links 61A and 61B are provided with the aforesaid male-type and female-type inter-connecting arrangements, respectively, for connection in the manner as above described. Each link 61 is in the same general shape as the watch bodies 11 and 12 of the first wrist watch 10.

15 The invention has been given by way of example only, and various modifications of and/or alterations to the described embodiments may be made by persons skilled in the art without departing from the scope of the invention as specified in the appended claims.

CLAIMS

1. An item of wrist wear having a elongate body which includes first and second ends releasably connected together, said first end having a recess part and said  
5 second end having a protruding part entered into the recess part, which parts comprise mutually aligned holes extending in a direction transverse to the longitudinal extent of the body, a connector movable in the holes between a first position extending from one said hole to the other hole so  
10 as to connect the two ends together against separation in the longitudinal extent of the body and a second position inside said one hole but absent from the other hole so as to permit disconnection of the two ends, a spring urging the connector towards the first position, and a manual  
15 operator provided in said other hole for moving the connector from the first to the second position against the action of the spring.

2. An item of wrist wear as claimed in claim 1, wherein said one hole is provided in the protruding part and the  
20 other hole is provided in the recess part.

3. An item of wrist wear as claimed in claim 1, wherein the connector is elongate and extends in a direction transverse to the longitudinal extent of the body.

4. An item of wrist wear as claimed in claim 3, wherein



the connector is formed by a stationary substantially cylindrical body having an open end and a co-axial substantially cylindrical connecting stud slidably held by the body at the open end, and the spring is provided inside  
5 the body to urge the connecting stud axially outwards.

5. An item of wrist wear as claimed in any one of claims 1 to 4, wherein the manual operator comprises a elongate member which is slidable in said other hole in a direction transverse to the longitudinal extent of the body.

10 6. An item of wrist wear as claimed in claim 5, wherein the manual operator incorporates a spring resiliently urging the elongate member co-axially against the connector.

15 7. An item of wrist wear as claimed in claim 6, wherein the manual operator includes a stationary sleeve holding co-axially therein the elongate member and the spring.

20 8. An item of wrist wear as claimed in claim 1, wherein the recess part is substantially U-shaped and has opposite sides between which the protruding part is located when connected to the recess part.

9. An item of wrist wear as claimed in claim 8, wherein the protruding part has opposite sides, at each of which sides a respective connector is provided, and a respective



manual operator is provided at each side of the recess part for co-operation with the corresponding connector.

10. An item of wrist wear as claimed in claim 1, being in the form of a wrist watch.

5 11. An item of wrist wear as claimed in claim 1, being in the form of a wrist bracelet.

12. An item of wrist wear as claimed in claim 1, being in the form of a wrist band.

13. A connection for a wrist strap or bracelet substantially as described herein with reference to the drawings.



Application No: GB 9501740.6  
Claims searched: 1-12

Examiner: Diane Davies  
Date of search: 10 November 1995

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.N):

Int Cl (Ed.6): A44C 5/14; 5/20

Other: Online databases: EDOC, JAPIO, WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2264628 A (Flexico Co. Ltd.) Whole document: connector for watch & strap having spring-loaded catch which retract a piston to release strap.	1-12
X	EP 0494584 A (SCS & Co. SRL) Coupling device acting transversely having connector parts (13) movable by a gripable element (21) against a biasing spring (17) .	1-12
X	EP 0133068 A (S. Berard) Whole document: connector for bracelet has a male part with transverse pistons (6) pushed by springs (8) for releasable engagement with a female part.	1-12
X	WO 9414105 A (Bonnet Design & Technology SA) Whole document: quick fastening for linking watch strap and casing has spring biased telescoping rod with a lateral projecting button to facilitate operation.	1-12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.



# The Patent Office

- 16 -

**Application No:** GB 9501740.6  
**Claims searched:** 1-12

**Examiner:** Diane Davies  
**Date of search:** 10 November 1995

Category	Identity of document and relevant passage	Relevant to claims
X	WPI Acc No: 88105867/16 & CH 664663 A (Malvine UK Ltd.) Watch connector having protruding part (6) engaging with transverse hole having connector (15) with spring 18 biased against manual operator (3).	1-12
X	WPI Acc No: 87291814/42 & CH 662028 A (Solanor AG) Coupling arrangement for fastening two members using two pins (3) urged into holes (11) with biasing spring (4) for manual release.	1-12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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